USGS

Montana Flood-Frequency and Basin-Characteristic Data

Flood-frequency data are based on recorded annual peak discharges through 1998. Peak discharges specified frequencies (exceedance probabilities) were determined by fitting a log-Pearson Type 3 probability distribution to base 10 logarithms of recorded annual peak discharges as described by th Interagency Advisory Committee on Water Data (1982, Guidelines for Determining Flood Flow Frequency--Bulletin 17-B of the Hydrology Subcommittee: U.S. Geological Survey, Office of Wat Data Coordination). **Note: Data are provisional and user is responsible for assessment and interpretation of flood-frequency data.**

Most of the basin characteristic data were measured in the 1970s from the best-scale topographic m available at the time. Some data, such as mean annual precipitation, soil index data, and mean Janu minimum temperatures, were compiled from maps prepared by other agencies. Channel widths wer measured in the field by USGS personnel.

The flood-frequency and basin characteristics data were used in a new flood-frequency report just published by the USGS, entitled "Methods for estimating Flood Frequency in Montana Based on D through Water Year 1998" (Water-Resources Investigations Report 03-4308). Information about th equations described in that report can be found at the following link.

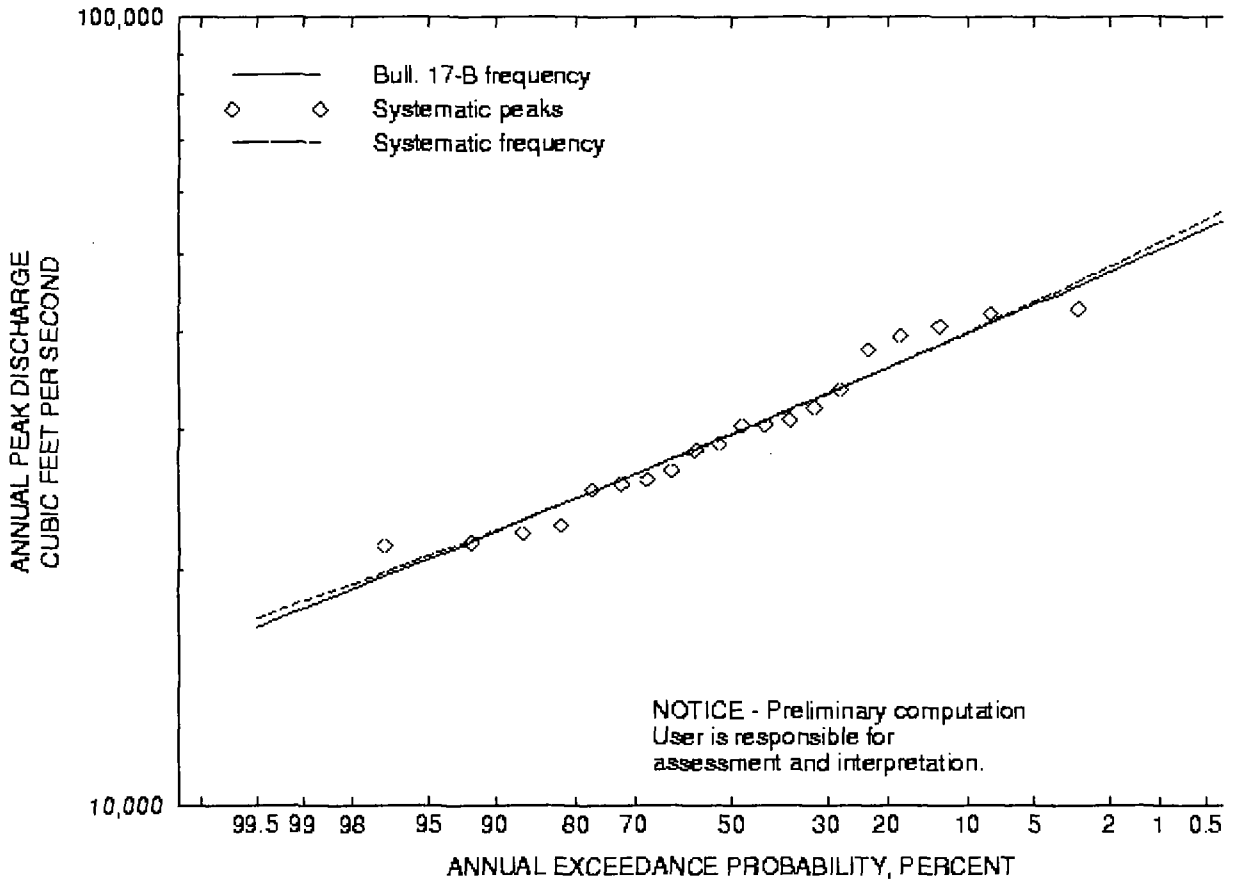
For more detailed information contact Charles Parrett:
Phone: 406-457-5928 or by e-mail.

12303000 Kootenai River at Libby, MT

Flood-frequency analysis based on period of record since beginning of flow regulation.

Annual peak discharge, in cubic feet per second (top line), for indicated exceedance probability, in percent (bottom line):

16900	17800	20600	22300	24600	29600	35900	39700	44300	47600	50800	53
99.5	99	95	90	80	50	20	10	4	2	1	



NOTE: Systematic peaks are those that are recorded within the period of gaged record. The computed flood-frequency curve is based only on the systematic peaks. The computed Bulletin 17-B flood-frequ often is different from the systematic flood-frequency curve because of differences between station ske regional skew, low- or high-outlier adjustments, or the presence of one or more historical peaks outsid systematic record. Historical peaks also result in historical adjusted plotting positions (exceedance pro for all peaks.

Recorded Annual Peak Discharge:

12303000 Kootenai River at Libby, MT

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Location.-- Lat 48 24'03", Long 115 33'08", Hydrologic Unit 17010101.
Drainage area.-- 10240.0 square miles.
Datum of gage.--    2041.54 ft above sea level.
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Table of annual peak discharge data [--, no data]

Water year	Date	Gage height (ft)	Discharge ft3/s	Date of Max. gage height	Maximum gage height (ft)
1911	June 16, 1911	13.80	72500	--	--

1912	May 18, 1912	9.60	36800	--	--
1913	June 4, 1913	14.30	77300	--	--
1914	June 5, 1914	12.10	56900	--	--
1915	June 28, 1915	9.50	36100	--	--
1916	June 21, 1916	20.70	121000	--	--
1917	June 18, 1917	12.99	65000	--	--
1918	June 13, 1918	14.29	77300	--	--
1919	May 29, 1919	14.59	80200	--	--
1920	July 4, 1920	12.51	60400	--	--
1921	June 9, 1921	13.84	72500	--	--
1922	June 6, 1922	13.45	68700	--	--
1923	June 14, 1923	13.67	71500	--	--
1924	May 18, 1924	10.74	45100	--	--
1925	May 23, 1925	14.38	78200	--	--
1926	May 1, 1926	8.04	26400	--	--
1927	June 12, 1927	14.90	83100	--	--
1928	May 27, 1928	13.85	70200	--	--
1929	June 4, 1929	12.17	57400	--	--
1930	June 1, 1930	11.46	52100	--	--
1931	May 17, 1931	10.66	41200	--	--
1932	June 16, 1932	14.06	62000	--	--
1933	June 18, 1933	16.90	85600	--	--
1934	May 31, 1934	14.39	63700	--	--
1935	May 24, 1935	12.66	52500	--	--
1936	June 1, 1936	12.18	49400	--	--
1937	May 28, 1937	10.76	41000	--	--
1938	May 28, 1938	15.60	78800	--	--
1939	May 18, 1939	10.80	41000	--	--
1940	May 26, 1940	11.88	48500	--	--
1941	May 19, 1941	8.18	26800	--	--
1942	May 27, 1942	14.45	67900	--	--
1943	June 19, 1943	12.19	50100	--	--
1944	June 1, 1944	8.44	27800	--	--
1945	June 2, 1945	12.44	51600	--	--
1946	May 30, 1946	15.12	74300	--	--
1947	May 11, 1947	15.06	74300	--	--
1948	May 28, 1948	19.93	109000	--	--
1949	May 15, 1949	13.97	61900	--	--
1950	June 23, 1950	16.23	79100	--	--
1951	June 17, 1951	14.97	69400	--	--
1952	Apr. 28, 1952	11.97	48800	--	--
1953	June 15, 1953	15.13	69600	--	--
1954	May 21, 1954	17.33	86600	--	--
1955	June 15, 1955	15.17	70700	--	--
1956	May 23, 1956	18.63	96600	--	--
1957	May 8, 1957	13.17	57100	--	--
1958	May 25, 1958	14.08	63100	--	--
1959	June 7, 1959	15.64	75800	--	--
1960	June 5, 1960	14.15	64600	--	--
1961	May 29, 1961	18.23	96000	--	--
1962	June 19, 1962	12.17	50000	--	--
1963	June 1, 1963	12.68	53600	--	--
1964	June 9, 1964	15.90	77800	--	--
1965	June 20, 1965	15.00	71000	--	--
1966	June 2, 1966	15.28	73100	--	--
1967	June 4, 1967	15.98	78400	--	--
1968	June 5, 1968	14.59	67900	--	--
1969	June 7, 1969	15.07	70100	--	--
1970	June 6, 1970	13.29	57100	--	--

1971	May 29, 1971	13.29	69200		--	--
1972	June 14, 1972	10.21	37900	_/5	--	--
1973	Nov. 12, 1972	10.49	39500	_/5	--	--
1974	July 1, 1974	10.67	40600	_/5	--	--
1975	Sept.11, 1975	8.91	30400	_/5	--	--
1976	Aug. 7, 1976	9.00	30900	_/5	--	--
1977	Nov. 26, 1976	7.08	21400	_/5	--	--
1978	Nov. 29, 1977	11.08	42700	_/5	--	--
1979	Dec. 9, 1978	7.36	22700	_/5	--	--
1980	June 19, 1980	9.24	32000	_/5	--	--
1981	June 7, 1981	11.00	42100	_/5	--	--
1982	Sept.22, 1982	9.65	33800	_/5	--	--
1983	Feb. 11, 1983	7.11	21600	_/5	--	--
1984	Jan. 5, 1984	7.25	22200	_/5	--	--
1985	Dec. 13, 1984	7.97	25600	_/5	--	--
1986	Nov. 4, 1985	8.47	25900	_/5	--	--
1987	Nov. 24, 1986	8.77	28300	_/5	--	--
1988	Sept.22, 1988	8.12	25200	_/5	--	--
1989	Oct. 17, 1988	8.42	26600	_/5	--	--
1990	Nov. 12, 1989	9.20	30400	_/5	--	--
1991	Dec. 13, 1990	8.87	28800	_/5	--	--

_/ Explanation of the footnotes used for Discharge data:
5 Discharge affected to unknown degree by regulation or diversion.

Basin Characteristics:

Value	Abbrev	Explanation
--	SLOPE	Main channel slope, in ft per mile
--	LENGTH	Total stream length, miles
--	ELEV	Mean basin elevation, ft above msl
--	EL6000	Percent of basin above 6,000 ft, msl
--	STORAGE	Percent of basin in lakes, ponds, and swamps
--	FOREST	Percent of basin in forest
--	SOIL_INF	Soil index, in inches
48.40083333	LAT_GAGE	Latitude of gage, in decimal degrees
115.55222222	LNG_GAGE	Longitude of gage, in decimal degrees
--	PRECIP	Mean annual precipitation, in inches
--	I24_2	Precipitation intensity for a 24-hour storm having a 2-year recurrence interval, in inches per hour
--	JANMIN	Mean minimum January temperature, in degrees F
--	WAC	Width of active channel, in feet
--	W2	Mean depth for active channel, in feet

--	WBF	Width of bankfull channel, in feet
--	W4	Mean depth of bankfull channel, in feet

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